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## **3.0 EXISTING ENVIRONMENT**

Section 3.0 describes the environmental and socioeconomic conditions likely to be affected by the Proposed Action. This section provides information to serve as a baseline from which to identify and evaluate environmental and socioeconomic changes likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions. The foreseeable environmental and socioeconomic effects of the Proposed Action and the No Action alternative are described in Section 4.0.

In compliance with NEPA and Council on Environmental Quality (CEQ) guidelines, the description of existing environment focuses on those resources and conditions potentially subject to impacts. These resources and conditions include: earth, mineral, water, biological and cultural resources, aesthetics, human health and safety, land use and access, solid and hazardous materials and waste, socioeconomics, and environmental justice.

### **3.1 EARTH RESOURCES**

#### **3.1.1 Definition of Resource**

This section considers the geology and soils of the proposed project sites. A general description of the geology of the area provides an overview of the area and is the basis for the soil and water resources information. Descriptions of each soil map unit on the sites, including slope, erodibility, permeability, frequency of flooding, limitations on uses applicable to the project, and other soil characteristics that might be affected or might affect implementation of the Proposed Action are discussed.

#### **3.1.2 Existing Conditions**

##### ***3.1.2.1 Geology***

FLETC land and the land that would be transferred to the State of New Mexico are all located within the Western Great Plains Physiographic Province and the Pecos Valley Section. The Pecos Valley Section is underlain by Permian marine sedimentary bedrock including limestone, dolomite, shale, salts, and gypsum overlain by Quaternary alluvium. Dissolution of the salts and limestone rock has produced extensive areas containing solution cavities (NMGS 1996). This part of the Permian Basin, a regional geologic structure, has warped strata containing porous limestone that traps oil and gas that is restricted by the impermeable shale and other rocks above. The porous limestone also contains artesian springs and wells, the source of the town name, Artesia (Chronic 1987).

##### ***3.1.2.2 Soils***

The soil map units on the FLETC land and the land to be transferred are listed below. None of the soils are classified as prime farmland or hydric soils. All these soil types are moderately alkaline, with pH levels ranging from 7.4 to 8.4. They also commonly support grazing, and none are classified as prime and unique farmland (NRCS 2001a, SCS 1971).

- Pima silt loam, zero to one percent slopes
- Reagan loam, zero to three percent slopes
- Reagan-Upton association, zero to nine percent slopes
- Upton gravelly loam, zero to nine percent slopes
- Upton-Reagan complex, zero to nine percent slopes

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The Pima Series consists of deep, well drained soils formed in stream alluvium, generally on alluvial fans and floodplains. It is subject to periodic flooding, but this occurs rarely. It is moderately susceptible to water and wind erosion, with moderately slow permeability. Its limitations for roads and small structures are mainly related to the flood potential (NRCS 2001a, NRCS 1997, SCS 1971).

The Reagan Series consists of very deep, well drained soils that formed in calcareous materials that are generally found on broad flats, filled valleys, and alluvial fans. It is not subject to flooding, has a slight susceptibility to water erosion, and is moderately susceptible to wind erosion. Its permeability is moderately slow due to a denser layer, with calcium carbonate concretions at depths between seven and 20 inches. Limitations for roads, small structures, and shallow excavations are mainly due to the high clay content in the subsoil causing low strength and the potential for shrink-swell (NRCS 2001a, NRCS 2001b, SCS 1971). The firing ranges are located on Reagan soils, which have a pH ranging from 7.9 to 8.4. The leaching potential of Reagan soils is moderate due to low adsorption. However, lead from bullet debris would precipitate out of solution due to alkalinity levels of the soils (USEPA 2001).

The Upton Series consists of shallow, well drained soils formed in unconsolidated limestone on ridges, foot slopes, and alluvial fans. The surface horizon contains limestone gravel to a depth of about nine inches. It is not subject to flooding and is moderately permeable. It is moderately susceptible to both water and wind erosion. There is a hard, cemented caliche layer within 20 inches of the surface that poses moderate to severe limitations on use for roads, small structures, and shallow excavations (NRCS 2001a, NRCS 2001c, SCS 1971).

## **3.2 MINERAL RESOURCES**

### **3.2.1 Definition of Resource**

Mineral resources include naturally occurring fluid and non-fluid mineral resources that are found in an area. These may have commercial or economic value or be significant due to their rarity or importance as a source for meeting national demands.

### **3.2.2 Existing Conditions**

New Mexico is a leading producer of fluid minerals and southeastern New Mexico harbors rich reserves of oil, and to a lesser extent, natural gas in the Permian Basin. This large geologic basin produces the oil and natural gas from broad downwraps filled in with thick sedimentary rock. The basin contains 1,112 discovered oil pools and 672 discovered natural gas pools. Production from the basin since 1920 equates to four billion barrels of oil and 18 trillion cubic feet of natural gas (NRCS 1998).

Southeastern New Mexico, including the BLM CFO, accounts for over 90 percent of the oil produced and about 30 to 40 percent of the natural gas produced in the State of New Mexico each year. An Environmental Impact Statement (EIS) was completed in 1997 to support the CFO's proposed RMP amendments on oil and gas development. The EIS reported that the CFO had 35,702 Federal, state, and fee wells drilled between 1904 and 1991. The CFO has approximately 3,097,000 acres in Federal mineral estate with approximately 3,159 leases.

The fluid mineral potential on the subject lands is considered high (BLM 1997). **Table 3.2-1** lists existing oil and gas leases. Three leases (held by the same entity) include 720 acres within Sections 27 and 35, and are due to expire in the years 2004, 2005, and 2008. One lease that includes land in Section 28 (40 acres within the subject lands, 40 acres adjacent, and 560 acres elsewhere within T16S, R25E) has no expiration date and is presumed to be held by production (Young 2001). During recent surveys, no wells were observed on the subject lands, therefore it is inferred that any production is occurring at some other

location under the lease. The ROW issued to FLETC for use of this land was subject to valued existing rights (Chambers Group 1990). A Mineral Report was prepared to determine the mineral potential of the proposed exchange lands between BLM and the State of New Mexico, and for the federal mineral estate proposed for transfer to FLETC. The report concluded that the area is valuable for oil and gas deposits. However, there are no existing leases on the public lands to be exchanged to the State of New Mexico (BLM 2001b).

**Table 3.2-1. Current Oil and Gas Leases on the Subject Lands**

<i>Serial Number</i>	<i>Size (acres)</i>	<i>Location (Twnshp/Rng/Sec)</i>	<i>Expiration Date</i>	<i>Management Agency</i>	<i>Acres in Exchange</i>
NM-094833	120	T16S/R25E/27	05/31/2005	BLM	120
NM-101081	600	T16S/R25E/27	08/31/2008	BLM	440
NM-010266	640	T16S/R25E/28	Note <sup>1</sup>	BLM	40
NM-94834	120	T17S/R25/3	05/31/2005	BLM	80
NM-439990	840	T17S/R25/4	Note <sup>1</sup>	BLM	160

Sources: Chambers Group 1990, BLM 1920, 1987a,b.

Note: (1) Lease held by production.

There are two natural gas pipelines crossing Sections 21, 22, and 27. The Agave Energy Company owns the pipelines and holds ROWs from the State of New Mexico and BLM. The pipelines are buried to a depth of three feet. The buried pipeline is not considered incompatible with firing range uses (Vaught 2001). (NM-30518 runs North/South through Sections 21 and 27, NM-30658 runs North/South through Sections 22 and 27.)

Locatable minerals found in the area include gypsum and selenite. Leasable minerals include potash, sulfur, and sodium (salt). Leases for potash and salt are presently found throughout Eddy County. Salable mineral contracts for caliche, quarry stone, and sand and gravel are also found throughout the county. Currently, there are no known active potash, sulfur, or sodium leases, active salable mineral contracts, or locatable mining claims on the subject lands. However, the salable mineral value for caliche, sand, and gravel is high, and the value for locatable minerals is moderate on both the state offered lands and the BLM exchange lands (BLM 2001b).

### **3.3 WATER RESOURCES**

#### **3.3.1 Definition of Resource**

Water resources analyzed include surface water and groundwater quantity and quality. Surface water resources comprise lakes, rivers, and streams and are important for a variety of reasons, including economic, ecological, recreational, and human health. Groundwater comprises the subsurface hydrologic resources of the physical environment and is an essential resource. Groundwater properties are often described in terms of depth to aquifer or water table, water quality, and surrounding geologic composition.

Other issues relevant to water resources include the downstream water and watershed areas affected by existing and potential runoff, and hazards associated with 100-year floodplains. Floodplains are areas of low-level ground present on one or both sides of a stream channel and are subject to either periodic or infrequent inundation by floodwater.

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This section describes the surface and groundwater resources in the vicinity of the subject lands and identifies known water quality problems.

### **3.3.2 Existing Conditions**

The Artesia area is located within the Pecos River valley, in the southern part of the Upper Pecos-Long Arroyo hydrologic unit cataloged by the U.S. Geological Survey (USGS) as Hydrologic Unit Code 1306007 (USGS 2001). It is underlain by the Roswell groundwater basin with a confined (artesian) aquifer consisting of porous rocks that is fed mainly by infiltration in the Sacramento Mountains to the west (Chronic 1987). The aquifer is from 260 to 240 feet thick, discharges to the Pecos River, and is the source of water for the City of Artesia (NRCS 1998).

#### ***3.3.2.1 Surface Water and Floodplains***

Surface water flows are carried by intermittent streams and arroyos, usually only during brief summer thunderstorms. Eagle Creek to the south is the major waterway in the vicinity, and it drains into the Pecos River to the east. According to the U.S. Army Corps of Engineers (USACE), Albuquerque District, there is an intermittent stream classified as waters of the U.S. in the eastern part of the current FLETC land in the southeastern part of Township 16 South, Range 25 East, Section 35 (Malunchuk 2001). The same drainageway also flows through the BLM land to the south in Township 17 South, Range 25 East, Section 3, where the land is within the 100-year floodplain. The relatively flat slopes and perimeter berms at the firing ranges minimize surface flows from the ranges to the drainage. No wetlands have been identified within the boundaries of the land to be transferred (USACE 2000). Eagle Creek is not listed on the New Mexico 303(d) list of impaired surface waters (NMED 2000).

#### ***3.3.2.2 Groundwater***

The depth to groundwater on the subject lands is between 200 and 300 feet. The salinity of the groundwater is considered low. Well data from the New Mexico Office of the State Engineers shows groundwater in the vicinity of the project area to be potable, with chloride levels of 27 ppm and a conductivity of 775.

Information from New Mexico Environment Department (NMED) indicates that the Pecos River Basin contains numerous sites where leaking underground storage sites were reported, as of November 1999. Most of these reported groundwater contamination cases are concentrated around the major industrialized areas including Artesia. These contamination sites are typically associated with service stations, liquid petroleum storage and distribution centers, pipelines, and oil extraction operations. There are no known sources of groundwater contamination on the lands to be transferred (NMED 2001). Potential for lead to enter into groundwater from firing range activities is considered low based on the alkalinity of the soils present on the firing range and low precipitation. Also, a relatively shallow, dense, soil layer would inhibit movement of water into groundwater.

## **3.4 AIR QUALITY**

### **3.4.1 Definition of Resource**

Air resources describe the existing concentrations of various pollutants, and the climatic and meteorological conditions that influence the quality of the air. Precipitation, wind direction, wind speed, and atmospheric stability are factors that determine the extent of pollutant dispersion.

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### **3.4.2 Existing Conditions**

#### **3.4.2.1 Climate**

The climate in the vicinity of FLETC is arid to semiarid with approximately a 195-day growing season. The average daily temperature in January is 40 degrees Fahrenheit (° F) and in July is 75° F. Precipitation averages approximately 14 inches, with most falling during spring and summer as high-intensity, short-duration localized thunderstorms. Winds are generally from the southeast in the summer and southwesterly in later winter and early spring. Average wind speeds are 10 miles per hour (mph) in the fall and 16 mph in the spring, with peak velocities of 50 mph (Chambers Group 1990).

#### **3.4.2.2 Air Quality Standards**

The Clean Air Act (CAA) delegates authority to state and local agencies to enforce the National Ambient Air Quality Standards (NAAQS) and to establish air quality standards and regulations. The adopted state standards must be at least as restrictive as the Federal requirements. **Table 3.4-1** shows the Federal and state air quality standards. Eddy County is considered to be in attainment of state and Federal air quality standards (AIRData 2001).

The CAA, Section 169A, established the Prevention of Significant Deterioration (PSD) regulations to protect the air quality in regions that already meet the NAAQS. The primary purpose of the PSD regulations is to ensure that impacts from new or modified sources, in combination with other sources, do not exceed the maximum allowable incremental increases for those pollutants in attainment. There are no PSD Class I areas located within Eddy County.

### **3.5 BIOLOGICAL RESOURCES**

#### **3.5.1 Definition of Resource**

Biological resources include native or naturalized plants and animals, and the habitats in which they occur. This section describes plant and animal species or vegetation types that typify the biological resources in the area. Sensitive species are plants and animals listed as threatened, endangered, or are of concern to the U.S. Fish and Wildlife Service (USFWS), the New Mexico Department of Game and Fish (NMDGF) (NMDGF 1999), and the New Mexico Rare Plant Technical Council (NMRPTC) (NMRPTC 1999), which designates state-protected plant species.

This section addresses species with the potential to occur in the study area in six categories of protection status. These include: 1) Federal Listed Threatened and Endangered Species, 2) Federal Proposed Species, 3) Candidate Species, 4) State Listed Threatened and Endangered Species, 5) Species of Concern, and 6) State Rare and Sensitive Species. These categories are defined below.

*Federal Listed Threatened and Endangered Species*—The Endangered Species Act of 1973 provides protection to species listed under this category. Endangered species are those species that are in danger of extinction throughout all or a significant portion of [their] range. Threatened species are those that are likely to become endangered species in the foreseeable future.

*Federal Proposed Species*—Any species of fish, wildlife, or plant that is proposed in the *Federal Register* to be listed under Section 4 of the Endangered Species Act.

**Table 3.4-1. New Mexico and Federal Ambient Air Quality Standards (AAQS)**

<i>Air Pollutant</i>	<i>Averaging Time</i>	<i>New Mexico AAQS</i>	<i>Federal (NAAQS)</i>	
			<i>Primary <sup>(1)</sup></i>	<i>Secondary <sup>(2)</sup></i>
Carbon monoxide (CO)	1-hour 8-hour	13.1 ppm 8.7 ppm	35 ppm 9 ppm	-- --
Nitrogen dioxide (NO <sub>2</sub> )	24-hour AAM	0.10 ppm 0.05 ppm	-- 0.053 ppm	-- 0.053 ppm
Sulfur dioxide (SO <sub>2</sub> )	3-hour 24-hour AAM	-- 0.10 ppm 0.02 ppm	-- 0.14 ppm 0.03 ppm	0.50 ppm -- --
Hydrogen Sulfide <sup>(3)</sup> (H <sub>2</sub> S)	--	0.030 ppm	--	--
Total Suspended Particulates (TSP)	24-hour 7-day average 30-day average AGM	150 µg/m <sup>3</sup> 110 µg/m <sup>3</sup> 90 µg/m <sup>3</sup> 60 µg/m <sup>3</sup>	-- --	-- --
PM <sub>2.5</sub> <sup>(5)</sup>	24-hour AAM	-- --	65 µg/m <sup>3</sup> 15 µg/m <sup>3</sup>	150 µg/m <sup>3</sup> 50 µg/m <sup>3</sup>
PM <sub>10</sub>	24-hour AAM	-- --	150 µg/m <sup>3</sup> 50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup> 50 µg/m <sup>3</sup>
Ozone (O <sub>3</sub> )	1-hour <sup>(4)</sup> 8-hour <sup>(5)</sup>	-- --	0.12 ppm 0.08 ppm	0.12 ppm 0.08 ppm
Lead (Pb)	Quarterly Average	--	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>

Notes: (1) Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.  
(2) Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.  
(3) For within corporate limits of municipalities within the Pecos-Permian Basin Intrastate Air Quality Control Region (1/2-hour average).  
(4) The ozone 1-hour standard applies only to designated nonattainment areas.  
(5) New NAAQS for PM<sub>2.5</sub> and 8-hour O<sub>3</sub> concentrations were established August 4, 1997; implementing guidelines have not been adopted.  
AAM = Annual Arithmetic Mean, AGM = Annual Geometric Mean, ppm = parts per million, µg/m<sup>3</sup> = micrograms per cubic meter.

*Candidate Species*—These are species that the USFWS is considering for listing as Federally threatened or endangered but for which a proposed rule has not yet been developed. In this sense, candidates do not benefit from legal protection under the Endangered Species Act. In some instances, candidate species may be emergency listed if the USFWS determines that the species population is at risk due to a potential or imminent impact. The USFWS encourages Federal agencies to consider candidate species in their planning process as they may be listed in the future.

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*State Listed Threatened and Endangered Species*—A list of state threatened and endangered species is maintained by the state of New Mexico, and these species are protected from harassment, taking, and possession. Similar definitions of threatened and endangered in the Federal category apply to the state category. State and Federal lists often include the same species.

*Species of Concern*—Species of concern to the USFWS are species for which there is insufficient information to determine if they should be listed. It is an informal term and these species receive no legal protection under the Endangered Species Act.

*State Rare and Sensitive Species*—New Mexico rare species include species with narrow ranges, or occurrences that are more widespread but are numerically rare.

### **3.5.2 Existing Conditions**

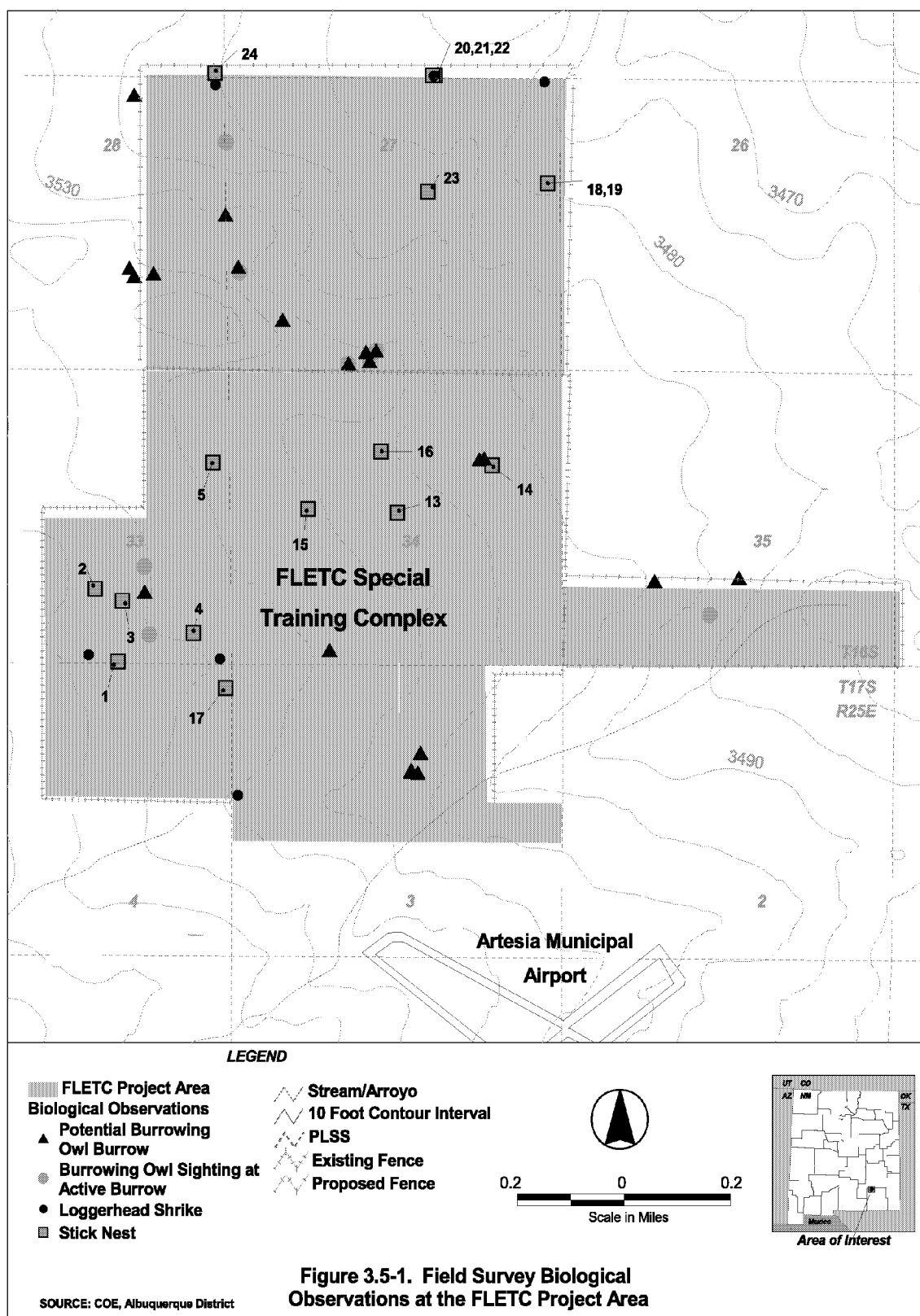
Reconnaissance level surveys were conducted for biological resources on approximately 2,960 acres of FLETC and BLM land from October 1 through October 5, 2001. The purpose of these surveys was to determine the general biological characteristics of the project area such as major plant community types, common wildlife species, the occurrence of sensitive species and/or their potential habitat. Additional information on the biological resources in the study area was obtained from the local BLM biologists, state and other Federal agency personnel, and the relevant literature.

#### **3.5.2.1 Terrestrial Vegetation**

The project area has generally flat terrain and is desert grasslands with scattered shrubs. The general area has been in drought for the past two years and the above ground vegetation of most ground cover plant species was dead. The common species of grass observed were tobosa (*Hilaria mutica*) and burro grass (*Schleropogon brevifolius*). Other grass species known to occur in this area are black grama (*Bouteloua eriopoda*), blue grama (*B. gracilis*), ear muhly (*Muhlenbergia arenacea*), and three-awn (*Aristida* sp.) (BLM 2000). Widely scattered Soaptree yucca (*Yucca elata*) and creosotebush (*Larrea tridentata*) were the most common shrubs. Other even more widely scattered shrubs and cactus observed included broom snakeweed (*Gutierrezia sarothrae*), prickly pear (*Opuntia* sp.), cholla (*Opuntia* sp.), and horse creeper cactus (*Echinocereus texensis*). Honey mesquite (*Prosopis glandulosa*) and little-leaf sumac (*Rhus microphylla*) were even less common. On the low rocky hills in Section 27 (**Figure 3.5-1**), creosotebush was more common and grass and soaptree yucca less common.

#### **3.5.2.2 Invasive Plants**

Disturbed ground resulting from previous FLETC construction and ongoing activities is common in Sections 3 and 4. This includes disturbed ground north, west, and south of the main built-up area in Section 3 and in Section 4, which contained a driver training tract, large man-made earthen mounds, and wooden towers. Construction activities were observed in both sections during the biological surveys.





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There are many areas of essentially bare ground and other areas dominated by dense growths of Russian thistle (*Salsola tragus*). Other large areas of disturbed ground is dominated by dense growth of broom snakeweed. Other invasive plant species observed in the disturbed ground include various species of thistle (*Cirsium* and *Centaurea* sp.), wild gourd (*Cucurbita* sp.), globemallow (*Sphaeralcea* sp.), salt-cedar (*Tamarix chiensis*) in one location, and others. Elsewhere in the project area, an occasional Russian thistle was observed.

### **3.5.2.3 Wetlands**

No wetlands or other aquatic habitat were observed. All stock tanks were dry and many had apparently been dry for a long time. One metal livestock trough contained water in Section 27 and there were aquatic plants and invertebrates in this trough.

### **3.5.2.4 Wildlife**

Reptiles observed include whiptail lizards (*Cnemidophorus* spp.), one western box turtle (*Terrapene ornata*), and unidentified snakeskins. Studies of desert grasslands elsewhere in southern New Mexico indicate that as many as 35 species of reptiles could occur in the project area. Common reptiles would be whiptails, southern prairie lizard (*Sceloporus undulatus*), side-blotched lizard (*Uta stansburiana*), gopher snake (*Pituophis catenifer*), and western diamondback rattlesnake (*Crotalus atrox*) (U.S. Army 1999a).

A total of 15 species of birds comprising 164 individuals were recorded (**Table 3.5-1**). The most species and individuals were detected on T16S, R24E, Section 2, followed by T17S, R25E, Sections 27 and 35. The burrowing owl (*Athene cunicularia*) and American kestrel (*Falco sparverius*) were the most common birds-of-prey. These small raptors were likely feeding on the fairly common grasshoppers in the area. Two red-tailed hawks (*Buteo jamaicensis*) and several turkey vultures (*Cathartes aura*) were the only other birds-of-prey observed.

Twenty-seven stick nests were observed (**Table 3.5-2**, Figure 3.5-1, and **Figure 3.5-2**), including four in a dead cottonwood tree (*Populus* sp.) in the center of Section 34. Two of these nests were falling apart and the nests in this tree are all included under Stick Nest #13 (see Table 3.5-2). Of the 24 stick nests on Table 3.5-2, 22 were in soaptree yuccas. Many of the stick nests are fairly small and may have been constructed by the common raven (*Corvus corax*), or, more likely, the Chihuahuan raven (*C. cryptoleucus*). The larger stick nests were most likely constructed by the red-tailed hawk, great horned owl (*Bubo virginianus*), or some other large bird-of-prey.

The vesper sparrow (*Pooecetes gramineus*) was the most abundant bird species detected, and they are likely migrant or wintering birds because this species nests to the north of southern New Mexico (Sibley 2000). Other common birds observed were the scaled quail (*Callipepla squamata*), loggerhead shrike (*Lanius ludovicianus*), horned lark (*Eremophila alpestris*), and meadowlark (*Sturnella* sp.) (Table 3.5-1). Breeding bird studies have not been conducted in the project area, but based on breeding bird surveys in desert grasslands elsewhere in southern New Mexico, the above species (except the vesper sparrow) and other species in Table 3.5.1 would be expected to nest in the project area. Other species such as the ash-throated flycatcher (*Myiarchus cinerascens*), northern mockingbird (*Mimus polyglottos*), black-throated sparrow (*Amphispiza bilineata*), Scott's oriole (*Icterus parisorum*) and house finch (*Carpodacus cassinii*), may also be fairly common breeding birds in these grasslands (U.S. Army 1999a).

**Table 3.5-1. Birds Observed during Biological Surveys on FLETC and BLM Land near Artesia, New Mexico during October 2001**

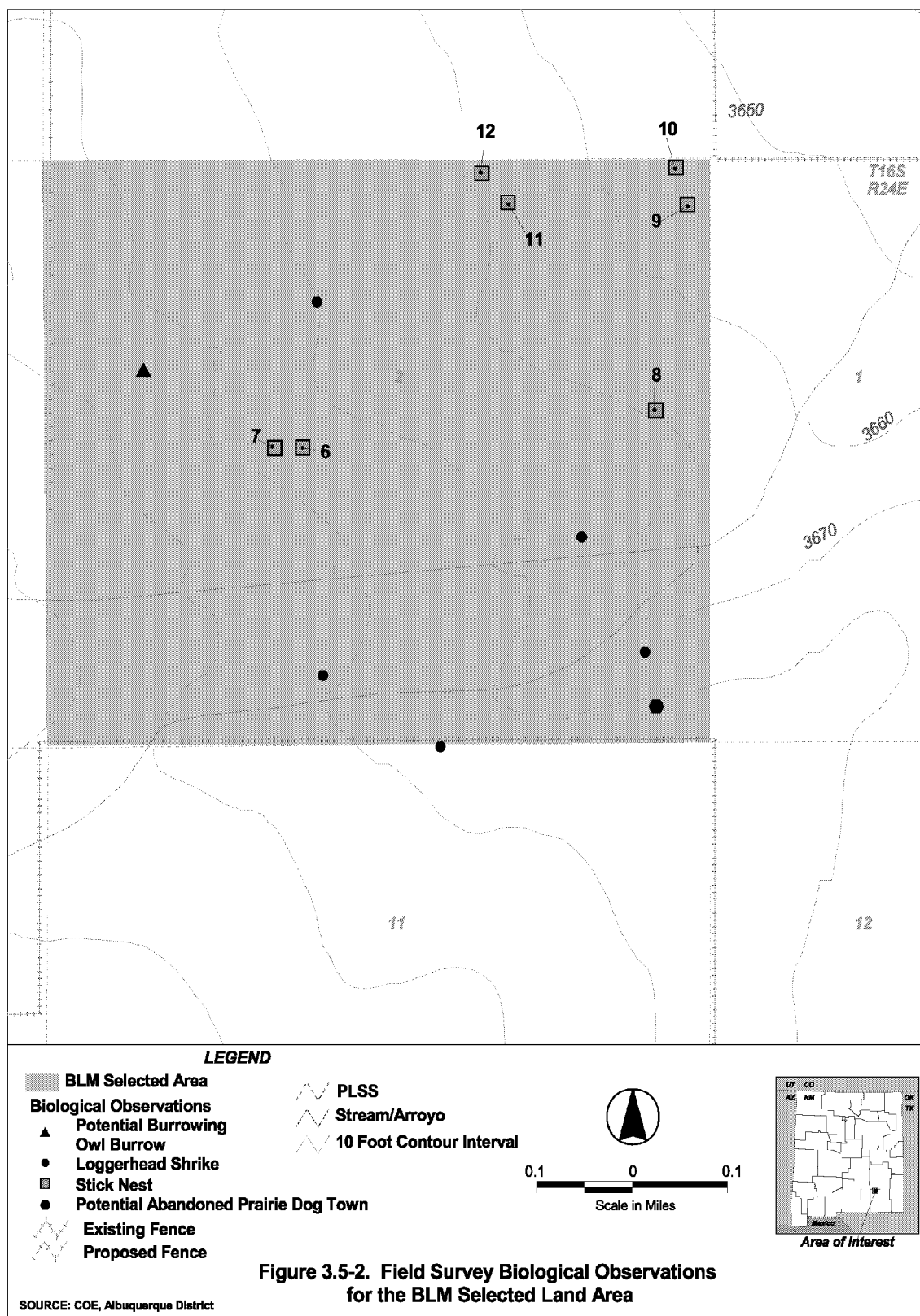
<i>Species</i>		<i>Date</i>					<i>Total</i>
<i>Common Name</i>	<i>Scientific Name</i>	<i>1<sup>st</sup></i>	<i>2<sup>nd</sup> (1)</i>	<i>3<sup>rd</sup></i>	<i>4<sup>th</sup></i>	<i>5<sup>th</sup></i>	
Turkey vulture	<i>Cathartes aura</i>	0	3	4	5	4	16
Red-tailed hawk	<i>Buteo jamaicensis</i>	0	1	0	0	1	2
American kestrel	<i>Falco sparverius</i>	1	0	1	0	2	4
Scaled quail	<i>Callipepla squamata</i>	0	12	0	0	7	19
American coot	<i>Fulica americana</i>	0	0	0	1	0	1
Mourning dove	<i>Zenaida macroura</i>	1	0	0	0	1	2
Burrowing owl	<i>Athene cunicularia</i>	2	0	0	6	0	8
Say's phoebe	<i>Sayornis saya</i>	0	3	0	0	0	3
Loggerhead shrike	<i>Lanius ludovicianus</i>	2	5	1	2	2	12
Horned lark	<i>Eremophila alpestris</i>	0	6	0	15	0	21
Cactus wren	<i>Campylorhynchus brunneicapillus</i>	0	1	0	0	0	1
Rock wren	<i>Salpinctes obsoletus</i>	0	0	0	3	3	6
Thrush sp.	<i>Toxostoma</i> sp.	0	1	0	0	0	1
Vesper sparrow	<i>Pooecetes gramineus</i>	1	15	9	7	2	34
Meadowlark sp.	<i>Sturnella</i> sp.	2	12	0	2	0	16
Unidentified		0	0	1	11	6	18
<b>Total</b>		<b>9</b>	<b>59</b>	<b>16</b>	<b>52</b>	<b>28</b>	<b>164</b>

Note: (1) Observations on the second day were all in T16S, R24E, Section 2 (BLM selected exchange lands).

**Table 3.5-2. Stick Nests Observed on FLETC and BLM Land during the October 2001 Field Surveys**

<i>Nest #</i>	<i>Plant</i>		<i>Nest</i>			<i>Comments</i>
	<i>Species</i>	<i>Height (ft) <sup>a</sup></i>	<i>Height (ft) <sup>b</sup></i>	<i>Diameter (in)</i>	<i>Depth (in)</i>	
1	Soaptree yucca	7.5	6.5	20	7	Fairly small nest—may be raven nest.
2	Soaptree yucca	8	7	20	10	
3	Soaptree yucca	6.5	6	-	-	Old nest falling apart.
4	Soaptree yucca	8	7.5	18	7	
5	Soaptree yucca	9	9	30	20	Large nest. Red-tailed hawk size.
6 <sup>c</sup>	Soaptree yucca	18	10.5	30	30	Deepest and highest nest seen so far.
7 <sup>c</sup>	Soaptree yucca	15	8.5	25	15	
8 <sup>c</sup>	Soaptree yucca	10	7	-	-	Old nest falling apart.
9 <sup>c</sup>	Soaptree yucca	9	7.5	15	15	Small nest built on stick nest. Made from fine hairs that are at base of yucca leaves.
10 <sup>c</sup>	Soaptree yucca	14	12	24	20	Large stick nest. Red-tailed hawk size.
11 <sup>c</sup>	Soaptree yucca	8	7	15	12	
12 <sup>c</sup>	Soaptree yucca	10	5	-	-	Old nest falling apart.
13	Dead cottonwood	40	20 & 28 (intact nests)	36	18	Four nests in this tree. Two falling apart.
14	Soaptree yucca	8	6.5	8	3	
15	Soaptree yucca	6	5	12	4	
16	Soaptree yucca	10	8	14	-	Nest falling apart.
17	Chinese elm	40	30	13	6	Nest in only large tree in area.
18	Soaptree yucca	11	6	20	8	This nest falling apart.
19	Soaptree yucca	11	10	24	12	Nest in good shape and in same yucca as Nest 18.
20	Soaptree yucca	10	6.5	15	8	One of two nests in one yucca.
21	Soaptree yucca	10	8	18	6	Second nest in same yucca.
22	Soaptree yucca	8	6.5	18	8	45 feet from Nests 20 and 21.
23	Soaptree yucca	7.5	6.5	18	6	
24	Soaptree yucca	9	8	18	8	

Notes: (a) Soaptree yucca height is height of leaves, not flowering stalk.  
(b) Height of nest measured from the top of the nest.  
(c) Stick nests on BLM land.



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The desert cottontail (*Sylvilagus audubonii*) and black-tailed jackrabbit (*Lepus californicus*) were seen fairly frequently during the surveys. Wild canid scats and large burrows apparently constructed by badger (*Taxidea taxus*) were also common. Burrows of smaller mammals were also observed. Detailed mammal studies have not taken place in the project area, but studies in desert grasslands about 80 miles west of Artesia on Otero Mesa have shown that the mammal fauna in desert grasslands can be diverse. The Otero Mesa study documented up to 18 species of small mammals in desert grassland habitat and species such as the Silky pocket mouse (*Perognathus flavus*), Merriam's kangaroo rat (*Dipodomys merriami*), white-footed mouse (*Peromyscus leucopus*), and deer mouse (*Peromyscus maniculatus*) were common and could also be common in the project area (U.S. Army 1999a). No signs of larger mammals such as pronghorn antelope (*Antilocapra americana*) or mule deer (*Odocoileus hemionus*) were observed in the project area.

### **3.5.2.5 Sensitive Species**

Information on sensitive species that have the potential to occur in the project area was obtained from the USFWS, BLM, and the NMDGF. (See Appendix A for correspondence from the USFWS and NMDGF.) The final list of species considered (**Table 3.5-3**) was determined from contacts with knowledgeable individuals or general species information from existing studies.

Information from the New Mexico Forestry Division indicated that the endangered gypsum wild buckwheat (*Eriogonum gypsophilum*) and Tharp's bluestar (*Amsonia tharpii*) have the potential to occur in the project area (Sivinski 2001).

There are nine Federally listed and candidate vertebrate species listed for Eddy County, New Mexico (Nicholopoulos 2001). Seven of the species were eliminated from further consideration because they did not exist in the FLETC project area or the BLM selected lands area because: 1) The black-footed ferret (*Mustela nigripes*) was extirpated from New Mexico. 2) The least tern (*Sterna antillarum*), Pecos bluntnose shiner (*Notropis simus pecosensis*), and Pecos gambusia (*Gambusia nobilis*) are associated with aquatic habitat. 3) The lesser prairie-chicken (*Tympanuchus pallidicinctus*) occurs principally east of the Pecos River. 4) The bald eagle (*Haliaeetus leucocephalus*) and Mexican spotted owl (*Strix occidentalis lucida*) occur in habitats not found in the project area.

The black-tailed prairie dog (*Cynomys ludovicianus*) and northern aplomado falcon (*Falco femoralis septentrionalis*) are Federal candidate and endangered species that have the potential to occur in the project area. In addition, the grassland habitat in the project area is considered potential mountain plover (*Charadrius montanus*) habitat by the USFWS (Sherman 2001). The remaining Federal species of concern and/or state sensitive species that have the potential to occur in the project area are in Table 3.5-3.

Gypsum wild buckwheat. Gypsum wild buckwheat (*Eriogonum gypsophilum*) is a perennial growing from a woody base and has yellow flowers. It is a Federally threatened and a state endangered species. It occurs in Eddy County, New Mexico and is known from three locations north of Carlsbad, New Mexico. It is restricted to sparsely vegetated areas of almost pure gypsum (NMNHP 1999).

Tharp's blue-star. Tharp's blue-star (*Amsonia tharpii*) is a perennial growing from a woody base and it has pale-blue or greenish-white flowers. It is a Federal species of concern and a state endangered species. It occurs in Eddy County, New Mexico and adjacent Pecos County, Texas, and it is known from three populations in New Mexico. It grows on limestone and gypsum hills in the Chihuahuan desert shrubland community (NMNHP 1999).

**Table 3.5-3. Sensitive Species that Are Known to Occur or Have the Potential to Occur on FLETC and BLM Land in Eddy County, New Mexico**

<i>Species</i>	<i>Status<sup>a</sup></i>		<i>Occurrence in Project Area</i>
	<i>Federal</i>	<i>State</i>	
<b>Plants</b>			
Gypsum wild-buckwheat	T	E	Not believed to occur in project area because there is no exposed gypsum strata.
Tharp's blue-star	SC	E	Not believed to occur in project area because there is no exposed gypsum strata.
<b>Reptiles</b>			
Texas horned lizard	SC	—	Not observed during surveys, but has the potential to occur in project area
<b>Birds</b>			
Baird's sparrow	SC	T	Not observed during surveys but still has the potential to occur in the project area during migration or the winter.
Ferruginous hawk	SC	—	Not observed during surveys, but has the potential to occur in the project area during migration or the winter. Low potential to occur during the breeding season.
Loggerhead shrike	SC	—	Frequently observed in project area. Likely breeds and overwinters in project area.
Mountain plover	PT	S	Not observed during surveys. Has not been recorded from area but could occur during migration. Low potential of breeding in area.
Northern aplomado falcon	E	E	No records of nesting in this section of New Mexico. Much of the project area considered marginal potential breeding habitat.
Western burrowing owl	SC	—	Frequently observed in project area. Likely breeds and may overwinter in project area.
<b>Mammals</b>			
Black-tailed prairie dog	C	S	No active prairie dog towns in project area. One potential old town. Prairie dogs could re-colonize area.

Sources: Hays 2001, Nicholopoulos 2001, Sivinski 2001.

Notes: (a) T = threatened, E = endangered, SC = species of concern, C = candidate, PT = proposed threatened, S = state sensitive species.

Texas horned lizard. The Texas horned lizard (*Phrynosoma cornutum*) is a Federal species of concern and is not listed by the State of New Mexico. This species has declined throughout its range. Habitat destruction, the introduction of the fire ant (*Solenopsis invicta*), and the use of insecticides are potential reasons for its decline (Burrow et al. 2001). This species uses a variety of habitats including desert

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grasslands and shrublands usually with sparse vegetation, and is known to occur in rangelands including areas heavily grazed by livestock (Fair and Henke 1997, Burrow et al. 2001). It is known to be common and widespread in desert grassland and shrubland habitat about 80 miles west of the project area on McGregor Range (U.S. Army 1999a). It was not observed during surveys at the project area, but potential habitat occurs in the survey area and it is likely a resident species of the area.

Baird's sparrow. Baird's sparrow (*Ammodramus bairdii*) is a Federal species of concern and a state threatened species. This species was once one of the most abundant nesting species in the northern prairie states and Canada, but has declined in abundance by about 90 percent with cultivation and conversion of much of its mixed-grass prairie nesting habitat (DeSmet and Conrad 1989). Baird's sparrows winter and migrate through New Mexico. It was once relatively numerous and widespread in New Mexico, but in recent years it is very rarely reported (NMDGF 1999). Baird's sparrows were observed during migration and the winter in swales on Otero Mesa with dense tall growths of tobosa grass along with black and blue grama and low shrub density (U.S. Army 1999a). This species was not observed during surveys in the project area and swales with dense growth of grass were not observed. However, tobosa and other grass species were observed in the areas surveyed so this species could migrate through and possibly overwinter in the area.

Ferruginous hawk. The ferruginous hawk (*Buteo regalis*) is a Federal species of concern and is not listed by the State of New Mexico. It breeds from the Canadian provinces south to Arizona and Oklahoma. It nests on trees, bushes, large rocks, and hillsides. It is a grassland species, and typically feeds on prairie dogs and ground squirrels (Finch 1992). This hawk's decline in some areas is due to its intolerance to human disturbance and loss of habitat due to cultivation (White and Thurow 1985, Houston and Bechard 1984, Schmutz 1984). Observations in desert grasslands on Otero Mesa, about 80 miles west of the project area indicate that this species is a migrating and wintering species but not a nesting species (U.S. Army 1999a). Although this species was not observed during surveys in the project area, the grassland habitat in the project area is considered potential habitat for migrating and wintering ferruginous hawks. This species could sporadically occur in the project area.

Loggerhead shrike. The loggerhead shrike (*Lanius ludovicianus*) is a Federal species of concern and is not listed by the State of New Mexico. It breeds throughout much of New Mexico including in the project area. This species has declined over much of its range and is considered a threatened species in Canada and numerous states (Robert and Laporte 1991). Breeding bird data from 1966 through 1995 show that this species has steadily declined throughout that period in the U.S. including New Mexico (Sauer et al. 1997). The reasons for the decline of this species in northern states is not clear. Robert and Laporte (1991) and Brooks and Temple (1990) have observed good nesting habitat in Canada and Minnesota that is currently not being used by this species. Brooks and Temple (1990) conclude that alteration of the shrike's winter habitat in the Gulf Coast states may be partially responsible for the species decline.

The loggerhead shrike populations north of New Mexico migrate south to New Mexico, Texas, and Arizona to winter (Root 1988) so birds observed during the winter in the project area may represent a combination of resident and wintering birds. The loggerhead shrike was observed 12 times during surveys (Table 3.5.1) in essentially all areas on FLETC and BLM land (Figures 3.5.1 and 3.5.2). This species likely nests in the project area, and elsewhere in southern New Mexico it comprises about one percent of the breeding bird population in desert grassland habitats (U.S. Army 1999b).

Mountain plover. The mountain plover (*Charadrius montanus*) is a Federal proposed threatened species and is not listed by New Mexico. It is estimated that this species has declined 63 percent since 1966 (Knopf 1994). This species is generally considered an associate of the short grass prairie dominated by blue grama and buffalo grass (*Buchloe dactyloides*) (Knopf and Miller 1994) although it is known to nest in Utah in habitat dominated by low growing shrubs such as sagebrush (*Artemisia* sp.) and rabbitbrush

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(*Chrysosyhamnus* sp.) (Day 1994). The mountain plover nests and forages in areas of disturbed ground such as occur at prairie-dog towns and areas heavily grazed by livestock (Knopf and Miller 1994, Sager 1996). The bulk of the mountain plover population winters in the central valley of California, and it seems to have adapted to the conversion of much of the native habitat to agricultural fields in that area. The survival rate of mountain plovers on their wintering ground is high, so it appears that the declines noted for this species are attributable to factors on the breeding grounds (Knopf and Rupert 1995).

In a recent survey in New Mexico, the mountain plover was observed at 35 sites in 11 counties during the breeding season. This species was observed in a variety of habitats, but bare ground was a common feature at all the sites and livestock grazing had created most of the bare ground. The bulk of the observations were in the northeast part of the State of New Mexico and none were from Eddy County and there are no historic records of this species from Eddy County (Sager 1996, Sherman 2001). The mountain plover was not observed during field surveys but the grassland habitat in the general area is considered potential mountain plover habitat by the USFWS (Sherman 2001). This species may occur in the project area sporadically during migration but does not likely breed there.

Northern aplomado falcon. The northern aplomado falcon formerly bred in the U.S. from southern Texas westward through southern New Mexico and southeast Arizona (Ligon 1961, USFWS 1990). In New Mexico, Ligon (1961) described the range as the southern portion of the state extending northwest from the Guadalupe Mountains to the base of the Sacramento Mountains, San Antonio, and Silver City. Specimen records and documented sightings indicate that the species was fairly common throughout its range until 1940, but has rarely been seen thereafter (Hector 1987). The last documented nesting of the species in the Chihuahuan Desert portions of U.S. occurred in 1952 near Deming, New Mexico (Ligon 1961) and the species was considered extirpated from the U.S. by the mid 1950's. Since then, only occasional sightings of the species have been documented in Texas, New Mexico, and Arizona (USFWS 1990, Cade et al. 1991, Williams and Hubbard 1991, Williams 1993, Henry and Cathey 1995, U.S. Army 1999a). However, a reintroduction effort is underway in southern Texas with captive-bred individuals being released in the Laguna Atascosa National Wildlife Refuge (Cade et al. 1991) and other areas. As a result, the first breeding pair of aplomado falcons in south Texas in over 50 years was discovered near Brownsville in 1995 (Peregrine Fund 1995). The continued release of captive reared birds has yielded significant results in that at least 16 pairs of aplomado falcons were observed in south Texas during the spring of 1999 (Peregrine Fund 1999). In addition, a pair nested in southern New Mexico near Deming in 2001 and this represents the first nesting pair in New Mexico since the 1950's. This pair did not successfully fledge young (Sherman 2001).

The northern aplomado falcon inhabits open grassland areas. Suitable habitat has low herbaceous ground cover and relatively few scattered, tall, woody plants (particularly yucca and mesquite) that serve as perch and nest sites (Hector 1981). Aplomados are not known to construct their own nests. They occupy abandoned stick nests built by other raptors or ravens. They commonly use nests built in tall forked yuccas although in south Texas, they have been observed nesting on utility poles, in abandoned crested caracara (*Polyborus plancus*) nests on large rose bushes and even on the ground (Peregrine Fund 1999). The former range of the northern aplomado falcon apparently closely overlapped that of the soaptree yucca (*Yucca elata*).

Aplomados prey primarily on small- and medium-sized birds and supplement their diet with insects, small snakes, lizards, and rodents. Montoya et al. (1997) analyzed pellets from Aplomado falcons in northern Chihuahua, Mexico. They found that avian prey made up 94 percent of the diet while insects accounted for the other six percent. They did not find rodents or reptiles in pellets or at pluck sites. Insects appear to be an important component of the diet of juvenile aplomados (Montoya 1995).



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The project area is considered potential aplomado falcon habitat by the USFWS (Sherman 2001). In addition, a preliminary survey of the grasslands west of Artesia, including BLM Section 2, indicated that these grasslands are marginal potential habitat (Meyer 2001). It is considered marginal because the habitat is on the northern boundary of the aplomado falcon range, and few existing nest sites were observed by Meyer (2001). As indicated in Section 3.5.3, 24 stick nests were observed during the field surveys. It is assumed that most of these nests were constructed by ravens or birds-of prey. Stick nest density was seven per square mile on BLM land and almost five per square mile on FLETC land. This is higher than the estimated 0.25 per square mile on the Otero Mesa grasslands (Meyer 2001). This would indicate that the project area has sufficient perch and nest sites for the aplomado falcon. The aplomado falcon appears to be sensitive to human disturbance (Meyer 2001), so much of the FLETC land in the built-up area and firing range would likely not support this species. The firing range safety fan area particularly towards the north end of Section 34 and the proposed safety fan extension in Sections 27 and 28 may be far enough from these activities to provide potential habitat.

Western burrowing owl. The western burrowing owl (*Athene cunicularia*) is a Federal species of concern and is not listed in New Mexico. This species nests in prairie, desert, sagebrush, and pinyon/juniper habitat as well as disturbed areas such as prairie dog towns, road cuts, and airports. Declines in this species are attributed to the loss of burrow nest sites resulting from the eradication of colonial burrowing rodents, particularly prairie dogs (Finch 1992).

The western burrowing owl was observed eight times during field surveys (Table 3.5.1) on FLETC land (Figure 3.5.1) and numerous potential active burrowing owl burrows were also observed. All burrowing owls were flushed from inside or near an active burrow. Potentially active burrows consisted of badger-sized burrows with splotches of white wash or castings on the mound next to the borrow entrance.

Black-tailed prairie dog. The black-tailed prairie dog is a Federal candidate species and a State of New Mexico sensitive species. The historic range of the black-tailed prairie dog included 11 states, Canada and Mexico. It currently occupies 10 states, and significant range contractions have occurred in Arizona, western New Mexico, and west Texas. Overall, it is estimated there has been a 98 percent decline in this species throughout North America. Historically in New Mexico, this species ranged over 6,640,000 acres of land, but it currently occupies about 39,000 acres of land (USFWS 2000).

No black-tailed prairie dog towns were observed during field surveys. One potential long abandoned prairie dog town was observed in BLM Section 2 (Figure 3.5-2). There are 20 to 40 prairie dog-sized mounds, but most no longer have any sign of a burrow entrance, and the remainder have eroded burrow entrances that are filled with dirt.

## **3.6 CULTURAL RESOURCES**

### **3.6.1 Definition of Resource**

Cultural resources are any prehistoric or historic district, site, or building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious or other purposes. They include archaeological resources (both prehistoric and historic), historic architectural resources, and traditional resources. Only significant cultural resources (as defined in 36 CFR 60.4) are considered for potential adverse impacts from an action. Significant archaeological and architectural resources are either eligible for listing, or listed on, the NRHP. Significant traditional resources are identified by Native American tribes or other groups, and may also be eligible for the NRHP.

The ROI for cultural resources consists of all properties included in the land exchange.

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## **3.6.2 Existing Conditions**

### ***3.6.2.1 Historical Setting***

The archaeological record of the project region spans more than 10,000 years, beginning with the hunter-gatherers of the Paleoindian, and Archaic-periods. During the Formative Period, the region was the eastern extension of the Jornada-Mogollon culture area. Early Spanish expeditions in the region noted bands of Native Americans throughout the region. However, the density of Native American archaeological sites is relatively low in the area—about six per square mile (USACE 2000).

The 19<sup>th</sup> and 20<sup>th</sup> centuries brought large cattle ranches and homesteads to the region. Artesia was part of John Chisum's ranching empire in the 1870s (Banks 2001). Land along the Chisum Trail near Artesia was homesteaded in the 1890s and the area was called by several different names through the decades. The town was named Artesia in 1903 when artesian wells were discovered and agriculture prospered (Banks 2001). Oil was discovered in 1924. The State of New Mexico patented land in much of the project area in 1920 (BLM 2001). Other patent holders in the vicinity included J. Ward Cave (1906) and Frank V. Hagaman (1930) (BLM 2001).

The FLETC Artesia Center was established in 1989 to provide advanced training for such agencies as the Immigration and Naturalization Service, U.S. Border Patrol, the Bureau of Prisons, and other partner organizations with concentrations of personnel in the Western U.S. (FLETC 1999). FLETC became the owner of what had been the Artesia Christian College campus and renovated it to become the Artesia Campus of the FLETC. Training began there in 1990. The Special Training Complex started on land that was formerly patented to the City of Artesia for a shooting range, but was re-conveyed to the U.S. government by the City (Chambers Group 1990).

### ***3.6.2.2 Cultural Resources***

No NRHP or state register-listed cultural resources have been identified within the project area (NRHP 2001, NMOCA 2001). Archaeological survey of 960 acres comprising the FLETC firearms buffer zone took place in 1989 (Chambers Group 1990). One archaeological site, a historic homestead (ca. 1920 to 1945), and six isolated artifacts were recorded during survey (Chambers Group 1990). The site (LA 76186) was not evaluated for NRHP-eligibility, and field recording was considered to have exhausted its research potential (Chambers Group 1990). A 1999 survey of 69 acres that included four parcels at the firearms training site (USACE 2000) found no archaeological sites. Further, a file search of archaeological records indicated that no sites had been previously recorded in the area (USACE 2000). Because the FLETC complex is located more than three miles from mesas, canyons, or permanent water sources, subsurface cultural resources have been considered unlikely (Chambers Group 1990, USACE 2000).

An archaeological survey of FLETC lands for this Proposed Action was conducted in September and October 2001 by the University of New Mexico, Office of Contract Archaeology. The survey identified two historic archaeological sites and 52 isolated lithic artifacts, including one projectile point base dating to the Paleoindian period. The two historic sites were the remains of homesteads. Site LA 134140 dates from the late 1800s to early 1900s, and site LA 134141 appears to have been occupied in the mid-1930s. BLM is in the process of evaluating NRHP eligibility of the two sites. Neither site is located where new fence would be installed. Coordination with the New Mexico State Historic Preservation Office (SHPO) and appropriate Native American groups is being conducted by the USACE.

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## **3.7 AESTHETICS**

### **3.7.1 Definition of Resource**

Visual resources constitute the natural and manmade features that give a particular environment its aesthetic qualities. A visual impression of an area is derived from the type, arrangement, and contrast between these features. Although each viewer's perception may differ slightly, an overall landscape character can be assigned to an area, and impacts to that character can be assessed. The BLM classifies lands according to their visual resource value in order to manage visual alterations that may result from actions on public land. Visual Resource Management (VRM) Class I is the most protective, allowing little modification of natural features, and VRM Class IV is the least restrictive, allowing noticeable manmade modification in the landscape.

Noise is considered to be unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive, stationary or transient. There is wide diversity in responses to noise that vary not only according to the type of noise and the characteristics of the sound source, but also according to the sensitivity and expectations of the receptor, the time of day, and distance between the noise source and the receptor (e.g., a person or animal).

### **3.7.2 Existing Conditions**

#### ***3.7.2.1 Visual Resources***

The subject lands are generally flat with slightly rolling terrain. The land is covered by grasslands, clumpy in appearance, with scattered shrubs. The form, line and texture of the natural landscape in the area is generally regular and simple. The predominant colors are muted and light in tone, and include browns, tans, grays and greens. Some manmade elements such as grazing fences, dirt roadways, stock tanks, and windmills are visible, but subordinate to the overall landscape. The facilities of the Special Training Complex have created a new context more typical of urban or industrial sites. The overall landscape quality is moderate, with no local outstanding qualities. The CFO manages visual resources for specially managed areas. None of the project area is within or near an area that is specially managed for visual resources.

#### ***3.7.2.2 Noise***

Noise from the firing ranges at the Special Training Complex was addressed in an EA prepared in 1990. Noise is generated at the firing ranges and at the driver training area. Land use in the surrounding areas is generally rural with a few isolated homesteads on surrounding properties. Gunshot noise can be heard during training, but is not intense at inhabited structures due to buffering effect of earthen berms. When there is no firing activity, the area is quiet, and natural sounds of wind and birds are audible (Chambers Group 1990, USACE 2000).

## **3.8 HUMAN HEALTH AND SAFETY**

### **3.8.1 Definition of Resource**

This section addresses health and safety associated with activities conducted at FLETC's Special Training Complex in Artesia, specifically small arms training, driver training, and maintenance activities. The region of influence encompasses the complex itself and surrounding areas that may be exposed to safety hazards from the activities conducted at the complex.

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### 3.8.2 Existing Conditions

Day-to-day maintenance and operations conducted by the FLETC are performed in accordance with PL 91-596, Occupational Health and Safety Act of 1970; 29 CFR Part 1960, Safety and Health Provisions for Federal Employees; EO 12196, Occupational Safety and Health of Federal Employees; and Treasury Directive 70-75, Safety Policy of the Center. FLETC has a Safety Program that addresses both safety and occupational health concerns for facilities, storage and handling of materials and munitions, driver training activities, fire response, and firearms training (Chambers Group 1990).

The firearms ranges are surrounded by vacant land to the north, east, and west. There are no downrange inhabited structures downrange from the firing ranges for a distance of 3.5 miles (Chambers Group 1990). The safety zones for the types of munitions currently used extend about 6,700 feet downrange from the firing ranges (shown in Figure 1.1-1). The safety zones are almost wholly contained within the land controlled by FLETC (either through lease or ownership). The EA prepared in 1990 identified the need to acquire additional land to expand safety zones that would accommodate munitions used in rifles. FLETC has restricted training to handguns because of safety zone constraints.

Except for 160 acres in Section 35, all the areas owned or leased by FLETC are fenced to prevent unauthorized access. Access is through one main gate on the south side of the complex. There are signs posted on perimeter fences that warn of potential safety hazards of the firing ranges.

An issue specific to firing ranges includes health effects from lead. Extensive air flow systems and bullet traps were incorporated into the design of the recently constructed indoor/outdoor firing ranges, minimizing the potential for lead inhalation. Lead inhalation is not considered a concern for the outdoor firing ranges that are exposed to open air (USACE 2000). Soil samples from an existing undisturbed berm at the firing range taken in 1989 indicated that lead levels did not exceed state or Federal standards. In a recent assessment it was noted that the impact berms and target pits at the two shooting ranges were “strewn with lead shot, metal bullets and split copper jackets.” The assessment noted that “potentially large accumulations of lead, copper, and other trace metals in soil associated with shooting at the ranges may present a significant long-term environmental hazard” (EMI 2001).

The U.S. Environmental Protection Agency (USEPA) Region 2 provides guidelines on assessing the potential for lead to enter into the environment and potential for risk to human health in its publication, *Best Management Practices for Lead at Outdoor Shooting Ranges*. Based on several criteria described in this publication, the potential for lead to pose a risk to human health and safety, through migration into drinking water supplies (either surface or groundwater), is considered low in the project area. Dissolved lead can migrate through soils into groundwater, however, lead does not dissolve in alkaline soils that are found at the firing ranges (Reagan loam). Also, low precipitation and a relatively shallow, dense soil layer would minimize potential for lead to reach groundwater. The perimeter berms at the firing ranges, gentle slopes, and well-drained soils would all minimize surface runoff of water that may contain lead. Therefore, any runoff from the firing ranges that may contain lead would only travel short distances. The one drainage on the edge of the project area that is classified as a water of the U.S. is estimated to be too far to be affected by surface runoff from the firing ranges.

FLETC provides annual physicals to instructors and includes lead-level blood testing (USACE 2000). High lead levels have not been detected from this testing. Also, there are no signs of animal mortalities in the project area from lead ingestion.

Driver training instructors are all graduates of the Center’s driver training course and receive complete physical exams annually. Driver safety is emphasized, vehicles are well maintained, and both head

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protection and seat belts are required for all drivers. The training course has guardrails to prevent accidents and to protect private property (Chambers Group 1990).

### **3.9 LAND USE AND ACCESS**

#### **3.9.1 Definition of Resource**

Land use comprises natural conditions or human activities occurring at a particular location. Land use categories reflecting human activities include residential, commercial, industrial, transportation, communications and utilities, agricultural, institutional, recreational, resource extraction and production, and other developed uses. Management plans and zoning subdivision regulations determine the type and extent of land use allowable in specific areas and are often intended to promote the use of land for the benefit of the public health, welfare, and safety, or to comply with other applicable laws.

The attributes of land use addressed in this section include land status (or categorization of land by type of owner), general land use patterns and activities, land use planning and zoning (where applicable), and special use areas.

Access is a necessary provision in order to manage and use public lands for a variety of productive and passive uses. The network of roadways that allows appropriate access to facilities or special features on public lands is the resource of concern. Access also includes other roads that allow service and access to private land within the area of concern.

#### **3.9.2 Existing Conditions**

##### **3.9.2.1 Land Use**

The project area is generally located in southeastern New Mexico, in Eddy County, a few miles northwest of the City of Artesia. The lands and immediate adjacent areas are outside the incorporated area. As shown in Figures 1.1-2 and 1.1-2, the subject lands are owned by FLETC (1,040 acres), BLM surface (1,480 acres), BLM subsurface (640 acres), and the State of New Mexico (440 acres).

FLETC originally acquired a ROW from BLM for 160 acres and 960 acres for the Special Training Complex, located just north of the municipal airport. An EA was prepared to support this action in 1990. A subsequent EA was prepared in 2000 for proposed facility and firing range expansion. The complex now includes seven outdoor firing ranges surrounded by earthen berms, a defensive driver training course, three indoor firing ranges, and about five or six other buildings used for administrative functions and instruction. The land had previously been used for grazing and production of limited amounts of gravel and limestone. Since the original acquisitions, the land has been used exclusively for FLETC purposes. FLETC's land is mostly fenced (except for the portion in Section 35, see Figure 1.1-1), preventing public access. Signs are also posted that warn of the hazardous training activities.

BLM lands include 640 acres selected to exchange with the State of New Mexico in T17S, R24E, Section 2, and 840 acres to transfer to FLETC in T17S, R25E, and T16S, R25E. The selected exchange lands are part of the Dry Chaparral Grazing Allotment, shown in Figure 2.1-1. This allotment comprises mostly BLM land (89 percent) with some state and private land. It currently supports 694 animal unit months (AUMs)<sup>1</sup> for 65 cattle yearlong (Britt 2001). It is estimated that each section (640 acres) supports an average of ten head of cattle. There are several grazing improvements on the land, including stock

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<sup>1</sup> Animal Unit Month: Amount of forage required to sustain a cow/calf unit (one cow and one calf) for one month.

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water tanks (“drinkers”), water pipelines, pasture fences, corrals, a well, base water rights, and water storage tanks. BLM recently completed an assessment for a proposal to construct a new pasture fence along the west side of Section 2 that will promote rotational grazing. It is still planning to implement this project.

BLM lands that would be transferred to FLETC under this proposal are listed in Table 2.1-1. They include 240 acres on the south side of the existing complex that are currently being used by FLETC under the original ROW agreement with BLM. These lands had previously been patented to the City of Artesia for use as a shooting range. The land was re-conveyed to the U.S. Subsequently, BLM issued the ROW to FLETC for the same general use as a firing range. There are two oil and gas leases on this land (Chambers Group 1990). This area is mostly fenced, so that public access to FLETC facilities is controlled. The remaining 600 acres are located on the north side of the FLETC complex and are currently used for grazing. The land is within the Brangus Grazing Allotment, shown in Figure 2.1-2. It also comprises a mix of Federal (46 percent), state, and private land. The allotment currently supports 744 AUMs (130 cattle and four horses) per year on average (Britt 2001). Most of this land has pasture fences along the section boundaries, but is generally accessible to the public for hunting. There is an existing access road, water pipeline, and stock tank on the north side of Section 27 that are critical for ranching operations on the entire allotment. An additional 640 acres of Federal mineral estate are located under FLETC-owned land.

There is no evidence of antelope in the area, and the level of use for diverse recreation and hunting is low. This land has potential for oil and gas development and other saleable and locatable mineral resources, although there is no existing exploration or production activity (see Section 3.2). There are three existing fluid mineral leases on these lands, and a ROW for a natural gas pipeline. Aside from cattle grazing, none of the subject lands are used for agriculture, and there is no reported evidence of past agricultural uses (EMI 2001).

The state-owned lands are adjacent to BLM lands on the north side of the FLETC complex. They are also within the Brangus grazing allotment and are leased to the same rancher as contiguous BLM lands (above). The SLO has issued a business lease to FLETC for 240 acres in Sections 33 and 34 exclusively for an ammunition trajectory safe zone. The lease was issued in 1996 and expires at the end of 2002. At the time the lease was signed, the area was fenced to preclude public access into unsafe areas. Subsequently, grazing, recreation, and other public uses have not occurred on this land. There are also two 50-foot wide natural gas pipeline ROWs held by Agave Energy Company, crossing Sections 28 and 34. These ROWs are perpetual with right of reversion (BLM 2001).

The surrounding area is mostly undeveloped. Ranching and oil and gas production are the primary productive uses. There are a few scattered homesteads. To the southeast of the FLETC complex is the Artesia Municipal Airport, and the former landfill for the City of Artesia is located to the southwest (Chambers Group 1990). Private lands surrounding the FLETC falls under the jurisdiction of Eddy County. Within three miles of the incorporated land at the airport, the City of Artesia has joint interest with Eddy County in future development and land use planning. The City of Artesia Planning Department indicates that development is not projected or planned for areas adjacent to the subject lands (Connelly 2001).

BLM lands in the surrounding area are managed for multiple uses by the BLM CFO. The land is managed to allow for resource production and public access while protecting the environment. There are no specially protected or specially managed areas, such as Areas of Critical Environmental Concern, Wilderness, or Wilderness Study Areas on or near the subject lands (BLM 1988). The public has access to surrounding BLM lands and is able to participate in dispersed activities such as hunting, gathering of vegetation products, Off-Road Vehicle use, and other recreational uses.

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### **3.9.2.2 Access**

The primary regional highways serving the City of Artesia are NM 82 and US 285. Access to the FLETC Special Training Complex from the City of Artesia is via County Road 111. County Road 90 runs from the City of Artesia westward and provides access to the BLM selected lands in Section 2. A network of smaller roadways provides access both within the subject lands and in the surrounding areas. These are comprised of county, BLM, private, and state roads that provide access for ranchers, to oil and gas, and other facilities. Some private roads are gated and do not provide through access to public lands. An unpaved roadway along the north end of Section 27 of the subject lands provides access from the east to the west portions of the Brangus Grazing Allotment.

## **3.10 SOLID AND HAZARDOUS MATERIALS AND WASTE**

### **3.10.1 Definition of Resource**

This resource addresses the appropriate use, storage, and disposal of materials and waste products. The terms “hazardous substances” and “hazardous waste” refer to substances defined by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), respectively. In general, hazardous substances include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or the environment when released into the environment. Hazardous wastes that are regulated under RCRA are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that either exhibit one or more hazardous characteristics including ignitability, corrosivity, toxicity, or reactivity, or are listed as a hazardous waste under 40 CFR Part 261. Petroleum products include petroleum-based fuels, oils, and their wastes. Solid waste includes all wastes, including hazardous, construction, demolition, and landscape debris.

### **3.10.2 Existing Conditions**

#### ***3.10.2.1 Hazardous Materials and Wastes***

An Environmental Site Assessment (ESA) was recently performed for the 2,960 acres that are the subject of this EA. The ESA referred to the BLM exchange lands (T17S, R24E, Section 2) as the “remote parcel.” The larger area of contiguous lands comprised of FLETC land and state and BLM lands were designated as the “main parcel.” A search of Federal and state environmental databases did not reveal any recognized environmental concern (REC) sites on the subject property. A former community landfill was identified to the southwest of the main parcel (five miles west of the City of Artesia). This landfill was certified as closed in 1998 (EMI 2001).

The ESA did not identify any past or present signs of development or use on the remote parcel other than grazing. There were no indications of spills, hazardous wastes, or hazardous waste sources on the BLM exchange parcel (EMI 2001).

On the main parcel, there is evidence of a former habitation site with trash midden and two livestock wells. A depression in the south central part of the main parcel has been used as a community dump site and as an unpermitted shooting range. It appears that only residential and construction debris were deposited. There are no visible signs of hazardous materials at either the dump or midden site (EMI 2001). The ESA recommends that three (formerly-used) livestock wells “be sealed and properly abandoned to prevent them from acting as a conduit for possible groundwater contamination or as a receptacle for illicit dumping, some of which may have already occurred (EMI 2001).”

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Most current activities with potential to use hazardous materials or to generate hazardous waste are associated with FLETC's Special Training Complex. FLETC's facilities, including the indoor and outdoor firing ranges, occupy a small portion of the main parcel in T17S, R25E, Section 3. A driving instruction course, located southwest of the firing ranges, has a winding track with berms on the curves, and a long skid pad. Most of the main parcel has been grazed in the past.

The current shooting ranges contain potentially hazardous lead shot, metal bullets, and split copper jackets, primarily concentrated along the tops and slopes of impact berms. Soil samples were taken from undisturbed berms at the firing ranges in 1989. These samples did not find lead present in levels above state and Federal standards at that time (Chambers Group 1990). The ESA indicated that "potentially large accumulations of lead, copper, and other trace metals in soil associated with shooting at the ranges may present a significant long-term environmental hazard" (EMI 2001). As permitted by state and Federal regulations, FLETC anticipates leaving firing debris in place until the range ceases to be used (Vaught 2001).

Of particular concern at shooting ranges is the potential for health effects from lead sources. During the lifetime of the range, the New Mexico soil screening standard of 1,000 ppm for lead would apply (Atencio 2001). At closure, the range and surrounding areas would need to be cleared and remaining soil would need to meet state and Federal screening standards for all contaminants. Specifically, under 40 CFR 261.24, the soil screening level for lead, currently five ppm, would apply for all potential contaminants, including lead (Atencio 2001). Until that time, concentrations of lead and other metals in the soil at the firing ranges are not expected to pose an environmental risk (see Section 3.8.2).

FLETC is designated as a small-quantity generator of hazardous waste. Potentially hazardous materials are used and stored in small quantities at the FLETC compound. Fertilizers, herbicides, pesticides, solvents, antifreeze, and petroleum products are used, stored and disposed of in accordance with regulations. All hazardous wastes must be managed according to regulatory standards. Buildings at the FLETC compound could contain lead-based paint, asbestos-containing material, and/or polychlorinated biphenyl-bearing light ballasts. There is no evidence of underground or aboveground storage tanks on the subject lands. The search of state and Federal databases revealed three unlocatable underground storage tanks in the Artesia area (EMI 2001, Chambers Group 1990).

### ***3.10.2.2 Solid Waste***

As described above, a partially covered, unpermitted dumpsite containing primarily common household trash and debris, dating to the 1940s and 1950s is located in an arroyo on the south end of the main parcel. There are no records regarding the type of material deposited in the dump. Adjacent to the dumpsite is a large pile of asphaltic concrete. The community has also used the arroyo as an unpermitted shooting range in the past. A trash midden on the east side of the main parcel has metals, glass, and ceramics associated with historic habitation (EMI 2001). FLETC's solid waste is currently collected and taken to a certified landfill.

## **3.11 SOCIOECONOMICS**

### **3.11.1 Definition of Resource**

Socioeconomic resources include population and economic activity, as reflected by personal income, employment distribution, and unemployment. Some related secondary components, such as housing availability and public services, are not considered in this analysis because the action has no potential to generate measurable changes in populations that would create demand for these resources. Statistics at the county, state, and national level will be used to describe the socioeconomic context. Eddy County serves



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as the ROI in which most impacts can be expected to occur, and the state and nation serve as regions of comparison. Specific information for grazing and the oil and gas industry in the local area and ROI are relevant and also presented.

### 3.11.2 Existing Conditions

**Population.** FLETC is located outside of Artesia, New Mexico, in Eddy County. Eddy County is roughly 4200 square miles, with approximately 12.4 persons per mile. It is generally rural in character and has no major urban center. However, the Cities of Artesia and Carlsbad have populations of 10,692 and 25,695, respectively in 2000. The total population of Eddy County in 2000 was 51,658 (U.S. Census 2000a,b). Carlsbad, the county seat, is approximately 35 miles from the site.

**Personal Income.** In 1999, Eddy County had a per capita personal income (PCPI) of \$19,843. This PCPI ranked 8<sup>th</sup> in the State of New Mexico, and was 91 percent of the State of New Mexico average, \$21,836, and 70 percent of the national average, \$28,546. In 1989, the PCPI of Eddy County was \$13,818 and ranked 6<sup>th</sup> in the State of New Mexico. The average annual growth rate of PCPI over the past 10 years was 3.7 percent. The average annual growth rate for the State of New Mexico was 4.5 percent and for the nation was 4.4 percent (BEA 2001).

**Employment.** Mining dominates the county economy as the largest industry in 1999, with 20.8 percent of earnings, followed by services (18.4 percent), and state and local government (12.9 percent) (BEA 2001). The importance of these industries is reflected in the Artesia economy, where mining and services figure heavily, as the breakdown of its largest employers in **Table 3.10-1** shows. Unemployment, however, was higher in Eddy County (6.6 percent) in the year 2000 than either the state (4.9 percent) or national level (4 percent) (BLS n.d.a., n.d.b., 2001).

**Table 3.10-1. Top Six Employers in the City of Artesia, New Mexico**

<i>Employer</i>	<i>Number of Employees</i>
Navajo Refining Co.	430
Artesia Public Schools	400
Yates Petroleum	350
City of Artesia	151
FLETC	125
Artesia General Hospital	115

Source: CoC 2001.

## 3.12 ENVIRONMENTAL JUSTICE

### 3.12.1 Definition of Resource

To comply with NEPA, the planning and decision-making process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations, including EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, which was issued by President Clinton on February 11, 1994. The essential purpose of EO 12898 is to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national

origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, tribal, and local programs and policies. Also included with environmental justice are concerns pursuant to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. This EO directs Federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children under the age of 18. These risks are defined as “risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest.”

Environmental justice considerations addressed in this assessment involve both population demographics, including ethnic, racial, or national origin characteristics, and persons in poverty, including children under age 18. In order to determine whether environmental impacts affect minority or low-income populations, it is necessary to establish a basis of comparison, referred to as the “region of comparison.” This area consists of the geopolitical units that include the proposed project. Most environmental effects from the Proposed Action, in this instance, would be expected to occur in Eddy County, New Mexico.

### 3.12.2 Existing Conditions

**Population.** The demographics at various levels are compared in **Table 3.11-1**.

**Table 3.11-1. Profile of Demographic Characteristics, Year 2000**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Race (Percent of Total Population)</i>							
		<i>White</i>	<i>Black or African American</i>	<i>American Indian and Alaska Native</i>	<i>Asian</i>	<i>Native Hawaiian and Other Pacific Islander</i>	<i>Some Other Race</i>	<i>Two or More Races</i>	<i>Hispanic or Latino (of Any Race)</i>
U.S.	281,421,906	75	12	1	4	< 1	5	2	13
New Mexico	1,819,046	67	2	10	1	< 1	17	4	42
Eddy County	51,658	76	2	1	< 1	< 1	18	3	39
Artesia	10,692	72	1	2	< 1	< 1	22	3	45

Source: U.S. Census 2001a,b.

When compared to the national level, the population of Eddy County has proportionally more persons of Hispanic background, while less of other minority groups, including Asian and Black. However, racial composition is similar to the state as a whole, with a higher percentage of White (76 percent compared to 67 percent for New Mexico. (It should be noted that persons of Hispanic or Latino origin may be White or any other race.) In addition, almost 18 percent claimed to be of some other race, while only 5.5 percent did so at the national level. When compared to New Mexico, Eddy County has a lower percentage of Hispanic and American Indians. Consequently, the population of Eddy County is not disproportionately composed of minority groups compared to the region, although there may be specific locations where this is not the case.

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***Poverty and Low Income Populations.*** The percentage of the population in New Mexico living below poverty (19.9 percent) is higher than for the nation (13.3 percent). Similarly, the percent of children living below poverty in New Mexico (27.5 percent) is considerably higher than the nation (19.3 percent). Poverty conditions in Eddy County are similar to state levels, but somewhat better than the state, with 18.6 percent below poverty and 25.3 percent of children below poverty. Therefore, Eddy County, when compared to the state, is not disproportionately low-income (U.S. Census 2000a,b).

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